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ABSTRACT

This document contains the following papers on video case studies from the SITE (Society for Information Technology & Teacher Education) 2002 conference: (1) "Developing Digital Video Resources To Improve Teaching with Technology: The PT3--'Best Practices' Project"; (2) "Portraits of Three Schools from the U.S.A. Exemplary Technology-Supported Schooling Case Studies Project" (Sara Dexter and Ronald E. Anderson); (3) "TLC--Students as Teachers" (Scotty Govaars, Pat Ridge, David Reider); (4) "Using Video To Support Teachers' Ability To Interpret Classroom Interactions" (Miriam Gamoran Sherin and Elizabeth A. van Es); (5) "Pepperdine Presents: An Online Video Case Studies Series To Use throughout a Teacher Education Program" (Sue Talley); and (6) "Educational Applications of Video: Creating Educational Video with Pre-Service Teachers To Demonstrate Classroom Management Strategies" (Mary Thompson). Brief summaries of several conference presentations are also included. Most papers contain references. (MES)

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Video Cases (SITE 2002 Section)

Sue Talley. Ed.

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SECTION EDITOR:

Sue Talley, Pepperdine University

As Barry Sponder and others who submitted papers for this section indicate, one of the more vexing issues in teacher education is the difficulty of bridging the gap between the theories of teaching and learning that credential candidates are exposed to while preparing to teach, and the complex realities these teachers encounter when they are employed and engaged in their teaching practice. Among the many techniques frequently used to address this issue is the use of text-based case studies. Shulman's research clearly indicates that these text-based cases, when used by instructors who are skilled in facilitating reflective dialogue, can improve teaching practice by helping credential candidates develop reflective skills. But Wasserman also points out that learning to teach is difficult when credential candidates have little time to *observe* teachers handling daily problems in their classrooms. Miriam Sherin points out in her paper in this section that learning to notice key components of a teaching situation and "connecting those components to broader concepts and principle of teaching and learning" is critical. The papers in this section indicate some ways that video, combined with newer CD-ROM technology and/or the World Wide Web, is helping to provide credential candidates not only with more opportunities to observe teaching practice but to observe practice in ways that may be more effective than classroom observations alone.

Benefits of Video

Several of the papers in this section point to similar benefits found in using video cases as part of preservice education. One of these benefits of the use of video is that it allows the credential candidates the ability to review a classroom teaching situation many times. This is substantially different than the normally limited ability of a candidate to do observations in the classroom itself. This is pointed to both by Sherin and myself in our papers. This is also implied by the nature of the video databases created by InTime at the University of Northern Iowa and the video database at Arizona State University. These databases can be accessed by different instructors for different purposes as needed.

Many researchers have pointed to the complexity of the classroom and the failure of schools of education to prepare candidates to deal with this complexity. The affordances of digital video, in particular, allow candidates to observe a single video through many different lenses. Haydek, from the InTime project, emphasizes that their video databases can be searched through the lenses of the Technology as Facilitator of Quality Education Model. This model includes the following elements: a) technology, b) students at the center of their own learning, c) content standards, d) teacher knowledge and behavior, e) information processing, f) principles of learning, and g) tenets of democracy. Thompson from the University of Houston indicates "much more can be learned from these video segments than how to teach a single skill."

Using video cases also gives candidates a common forum for discussion. As Lynda Ginsburg says about the Captured Wisdom videotapes, they are "useful for stimulating teachers to think about and question the approaches of other teachers and the ways that they might adapt what they see and hear for their own local education contexts... . " This observation, reflection, and dialogue process, just as with text-based cases, appears to be a key component of the video cases. Sherin, in particular, describes this dialogue and how continuation of this cycle over time changes the teacher's reflective practice.

Another benefit of digital video, especially when used in combination with the web or a CD technology, is the ability to add teacher and expert commentary. This enables the candidate to "see" the video through the eyes of other, more expert, viewers. Savenye at ASU includes these commentaries as do we at Pepperdine. Yusko describes the process of having the mentor teacher watch the tape and comment on his own teaching. As Yusko says, "We found that the 'stimulated recall' nature of this interview allowed [the mentor teacher] to speak in rich detail about his thinking... ."

PT3 Convergence

As a PT3 Project Director I was intrigued by the common elements being included by many of the PT3 projects that are creating video case studies. One of these elements is the Pre / Post Teacher Interview portion of the video case study. This is included in the InTime cases, the Pepperdine cases, the ASU cases, and in Yusko's work. As discussed above, this commentary appears to guide the candidate to focus on critical elements in the video.

Some of the projects have commentaries by others as well. Both ASU and Pepperdine include commentaries by content experts and by a technology expert. As Sherin and van Es point out, teachers "need to find ways to focus their attention on new aspects of classroom interactions." It appears that these commentaries, along with the commentaries of the teacher, might scaffold this "noticing" process.

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Sponder points out that lesson planning and classroom management are classic conundrums for the new teacher. Many of the video cases include elements designed to address this. The ASU cases include a portfolio of the lesson plan, materials developed by the teacher, and links or resources for the technology used. The InTime cases include a lesson overview and information about the content standards covered. In the Pepperdine cases, a resources section includes links to related research, state frameworks or standards, additional reading, as well as samples of student work. Classroom Management is specifically addressed in the video cases developed by the University of Houston and as I point out, Pepperdine's experience is that viewing case studies from different perspectives leads to use in new areas: "For example, [video cases] can be used in an Instructional Strategies class where preservice educators may be discussing possible classroom management strategies. They might also be used in an Educational Psychology course where preservice teachers might develop their observation and reflection skills."

Analysis and Reflection

Sherin and van Es discuss in their paper how the use of video seems to change the course of discussion over time from a focus on the "how of teaching" to the "why of student learning". They raise a very important concept for all involved with the use of video cases about the need to scaffold to ability to "learn to notice" and then to link this noticing to key theories and prior knowledge.

Yusko points out that there is a great value in the process of editing the videos because that process itself is a key analytical tool. In fact, that realization is what led Jim Stigler to create the LessonLab software used by Pepperdine. Stigler came to this realization after his experiences with analyzing the videotape captured during the TIMSS project. The analysis gained through thinking about what is important in the video is key. Following this with reflection and dialogue leads to a much richer experience, according to the preliminary results of the work of many who submitted papers in this section.

This concept that editing a video leads to greater analysis has led some creating video cases to have teachers and students create their own digital videos that they then edit and on which they reflect and comment. This concept is highlighted in the TLC – Teachers as Students Project from the Department of Defense Dependents' Schools. David Georgi from Californai State University at Bakersfied has also been experimenting with this concept. We have begun work with this at Pepperdine as part of our work on electronic portfolios.

Video Production: Lights, Camera, Action

Yusko, while candidly sharing his journey into creating video cases, describes the experience of many of us as we entered this world. He says, "We quickly began to realize the complexity of capturing high quality classroom video footage. Even when we carried the camera around the classroom, we realized that we needed guidelines to accommodate different classroom formats, such as whole group discussions, small group work or individual work. We needed to know where to focus the camera, on who, and for how long. To make sure that we had high-quality sound, we experimented using two remote transmitters with different types of microphones." During our panel discussion, Redmond, Georgi, and I also propose to answer questions about what we have encountered in this area.

One of the key elements that no one specifically refers to in their papers but that I am sure will be quite obvious in the demonstrations is the fact that this newer technology makes it much easier to scan the video and to jump backwards or forwards to places where the analysis, reflection or discussion might be focused.

Unique Purposes

Several of the video projects included in this section had purposes very different than the typical case study used in preservice education. For example, Easterm Washington University and Cheney School District created a 17 minute video to "tell" teachers of the value of participating in the partnership between these two institutions as part of their PT3 grant. Stephen Ransom from Ball State University uses video cases to help teachers better understand how to evaluate software. After learning the limitations of checklist evaluations, he experimented with showing the software being used in a classroom, thus situating its use. His paper highlights the reactions of the teachers to this use of video and this new form of software evaluation. His ending note is particularly interesting because, as others here noted, the use of the video can frequently extend well beyond its original purpose. The University of Minnesota uses case studies to document how technology integration is successfully sustained. Finally, swinging full circle back to Sponder's comments about the difficulty of bridging theory and teaching experience, Sponder created a CD-ROM that includes not only video cases designed to help preservice teacher prepare for student teaching, but also includes answers to Frequently Asked Questions , and interviews with key personnel. This CD-ROM is designed to be given to every candidate prior to their student teaching experience.

Conclusion

Miriam Sherin and Elizabeth van Es summarize best much of what is written in the papers in the Video Cases section. Research indicates that video can help us to help teachers to learn what to *do* in the classroom. The newer video cases, using newer technology, extend this to helping teachers to *notice* what is happening in a classroom. With guidance, this ability to notice can lead to improved teaching practice and the ability to adopt new teaching interactions and processes as well as to integrate new content or materials.

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Developing Digital Video Resources to Improve Teaching with Technology:
The PT3 - "Best Practices" Project

Introduction

The Preparing Tomorrow's Teachers to use Technology (PT3) program is an initiative of the U.S. Department of Education designed to improve teacher preparation programs to allow educators to more effectively integrate technology into their teaching. The foundation of the PT3 program is that schools increasingly have access to network resources and the Internet; their goal now is to improve teachers' and students' use of technology to improve learning. For instance, Base and Meek (1998) report that 78% of K-12 schools have access to network resources. School district leaders believe their students must have access to and use technology (Brush, 1999; Brush & Bannon, 1998.) Although most institutions that prepare teachers offer some type of technology course, research continues to show that teachers do not feel prepared to effectively integrate technology into their instruction (Schrum, 1999; Strudler & Wetzel, 1999; Topp, Mortensen, & Grandgenett, 1995.)

In August, 2000, Arizona State University was awarded a 3-year, $1.15 million PT3 Implementation Grant. This award is being used to fund a project entitled "A Field-Based Model for Integrating Technology into Pre-Service Teacher Education." The technology skills and processes the preservice teachers are learning are based upon state recommendations and the ISTE (2000) standards.

This field-based project involves a collaboration among schools, three university campuses, and the Arizona K-12 Center. During the first year educational technology and methods faculty teamed with educational technology graduate students to develop and present hands-on workshops at five elementary schools where students take most of their methods courses. Mentor-teachers at the schools work with the preservice teachers and also participate in the technology workshops. During the summer of 2001, a Teacher Institute was held for the mentor-teachers at these schools and three more are participating during the second year.

The primary goals of the ASU PT3 project are that that the preservice teachers, along with their methods faculty and their field-based mentor-teachers will demonstrate a significant increase in both the quality and frequency of technology integrated into their teaching.

As part of the field-based PT3 project a set of prototypes of a www multimedia database of materials and best practices has been developed.

In the proposed SITE Video Festival demonstration we will focus on presenting samples of all components of the database, a software tool designed to aid preservice, but also inservice, teachers in integrating best practices of technology into their teaching. We will present an example of one full "lesson" from one of our participating teachers, along with sample video clips of several others of the teachers. In addition, in our discussions with SITE members, we may also discuss aspects of the development of the video-based "best practices" project.

The "Best Practices" Digital Video Database

Arizona State University, the Arizona K-12 Center, and Northern Arizona University are partnering to provide the preservice teachers with access to databases of instructional materials and methods for utilizing these materials. The K-12 Center is hosting the database, so that it is accessible not only to project teachers, but to teachers throughout the state. Preservice teachers will be expected to access these materials via the www, evaluate appropriate methods for using these materials, and integrate these materials into their instructional activities.

"Best Practices" Videos to be Demonstrated at SITE

Our prototype series includes several recognized "best practices" teachers. A sample of the materials, each set of which will include a pre-instruction interview with the teacher, a video of the teacher delivering the technology-based lesson, and a post-instruction reflective interview with the teacher, will be demonstrated. A portfolio consisting of the systematically-designed lesson plan (cf. Dick & Carey, 2000; Sullivan & Higgins, 1983) and materials developed by the teacher, links or resources for the technology used, and a sample of a commentary by an educational technology or methods expert will also be presented to SITE audience members.

The Video Lessons

Each lesson is built along a "model" or "timeline" of a lesson, which allows for all types of teaching styles and philosophies. Preservice teachers can access the lessons and lesson materials by clicking on components along a timeline that serves as a metaphor for the lessons. The lessons consist of:

Lesson Interviews and Commentaries. Each lesson includes extensive reflective interviews and commentaries. Teachers were interviewed prior to teaching the videotaped lesson and immediately after they taught their students. A

follow-up commentary is also included; the teacher reviews his or her edited lesson and then comments upon his or her teaching practices.

For each lesson one subject-matter expert or peer-expert teacher, and one technology expert have also provided a reflective commentary while viewing the edited tape. Preservice teachers may then choose to view each lesson several times, reviewing the teacher or various other experts' perspectives each time.

Timeline Components. A flexible framework was developed for the lessons. For each lesson the videos include an Introduction, Presentation, Activities and Wrap-up. Preservice teachers can access any or all components of each lesson and can review any sections they wish.

Example Lessons to be Demonstrated

One lesson will be shown in full, followed by illustrative excerpts from several other lessons.

Fifth-sixth grade mathematics. It is planned that this lesson will be shown in full. A fifth-sixth grade teacher prepared a lesson on Archimedes Spiral for her class of higher-achieving middle school students. The students had previously learned about natural spirals. She began her lesson with an inquiry-based introduction, in which she questioned students extensively to help them recall what they learned in the prior lesson. In this introduction, as the students actively built upon this knowledge base, she wove new instruction into the inquiry. She used a Powerpoint presentation with many photographs and drawings, and an animated illustration of Archimedes Screw to show students historical and current uses of this spiral in technology. She then showed students a Quicktime movie she had prepared to show students in close-up views the tools and techniques they would be using to build their own Archimedes-type spirals. She gave students several challenges for their participation in the lesson, including to test what happens when they vary the size of the peg used to make their spirals. Also during the active participation part of the lesson students were challenged to search the web on one of their classroom computers to answer questions about the spiral and further uses. Students worked in cooperative groups to build the spirals and to answer the internet-based challenge questions.

In pre-and post-interviews the teacher described the purposes to which she put technology in this science and math lesson, what she hoped students would learn, state criteria being met in the lesson, how she will assess student learning and advice for new teachers who wish to use this lesson.

Examples of Excerpted Lessons to be Demonstrated:

- High-School Language Arts. A high-school teacher used technology to motivate lower-level students in an English class. She has found that building challenging lessons using the web has helped her increase these lower-achieving students' successful completion of this English class. This teacher used PowerPoint, Inspirations software and a Web-Quest, followed by student presentations, to allow students to "build their case" for who King Arthur might have been, and where Camelot might have been.
- High School Physical Science. Another teacher is using SimCalc to help his students learn to analyze and interpret data from their physical science experiments.

Implications

We anticipate that access to the "Best Practices" videos, lesson materials, reflective interviews and commentaries, both by PT3 teachers and all teachers in the state, will enhance teachers' success in integrating technology into their classrooms. Their use of technology will go beyond using computers as tools to allowing their students to learn in innovative ways using a full range of technologies.

For our Video Festival SITE participants we will provide a handout summarizing our video project, along with highlights from formative evaluations we have conducted using the videos. We will also provide a view of our future development plans and of research we are conducting on how best to support the learning value of our videos for preservice teachers.

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Portraits of Three Schools from the U.S.A. Exemplary Technology-Supported Schooling Case Studies Project

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Abstract: This presentation features video footage from three schools with innovative classroom teaching using technology. The results were obtained as part of 11 case studies in USA schools and were selected to be part of two international studies, one by OECD and the other by IEA. Innovative roles of both teachers and student were evident and improvements were sustained by professional communities and by emphasizing both technical and instructional support.

Background

New conceptual and methodological models are needed to cope with the changes that result from integration of information technology into education. Rapid changes in technology and the ways that schools adapt to them mean that qualitative methods are needed to identify key factors, uncover hidden meanings, and explore alternative conceptual models. The "Exemplary Technology-Supported-Schooling Case Studies" project (funded by OERI of the US Department of Education) was part of the United States participation in two international projects, one by OECD and the other by IEA.

The methodology was designed to study sites successful in dealing with rapid changes due to technology. In the USA, sites selected also had to be committed to meeting high content standards; have students drawn from diverse backgrounds with some low income students; implementing reform efforts that appeared to be sustainable and transferable; and have compelling evidence that the reform efforts were resulting in educationally significant student outcomes. An extensive procedure of solicitation of nominations from numerous experts and organizations was followed to obtain candidate school sites around the country.

Overview of the Schools

From the eleven case studies we completed, we selected three schools to feature in video portraits. One was a senior high with only 240 students. However, the other two schools, a middle school and an elementary school, were average in size with two-thirds of the students from low-income families. These three schools and their innovative programs are summarized briefly:

(1) The New Tech High School has an underlying philosophy of educating students in capabilities most essential to the 21st century, especially problem-solving, project construction, knowledge management, and teamwork. Most classes are interdisciplinary and team-taught, and students' work often requires they serve as a team member on a project. Students spend a major part of every day using computers, as most of their assignments are projects requiring educational technology applications. Nearly ninety-five percent of the students attend college within two years of graduation. New Tech High has established a reputation for innovation and high productivity with frequent visitors from all over the world.

(2) The Lemon Grove Middle School focuses upon academic performance emphasizing professional development and extensive technology support made more feasible by a relatively high density of "thin clients," network PCs lacking local diskette or CD-ROM storage devices. The district also provides these thin client computers free or at low cost to parents without home computers. Essential to the success of the program is a strong professional development program providing every teacher in the school with a minimum of 120 hours related to technology during the first year. Equally critical to the program is a very extensive technology support system. While the program encourages and supports all types of pedagogical approaches including inquiry and project learning, a major emphasis is on remedial activities and other technology applications that help to improve student achievement. Test score gains for the school are consistent with their program goals.

(3) At Newsome Park Elementary, laptop computers are linked wirelessly to hubs for shared activities and Internet access at a 5:1 student to computer ratio. The wireless laptops support flexible distributions to classrooms so small groups of students can use networked computers on a fairly regular basis. A central tenant of their reform effort is to utilize student interests and discussion to drive the direction and character of projects, which are usually long-term and interdisciplinary. An essential feature of their school-wide program is for every teacher to participate in a school-based, intensive, forty five hour, technology-focused professional development experience. This kind of instructional technology support has made it possible for some teachers to implement some advanced techniques such as concept maps with young children.

Overview of the Findings

New Teacher and Student Roles in the Technology-Supported Classroom

The use of educational technology is part of a shift toward new instructional approaches within a context of school improvement or reform. A range of technologies are supporting teacher and student practices and contributing to a transformation in their traditional roles. Students are more often serving as knowledge managers, team members, and self-regulated learners. Teachers are more often serving as instructional designers, collaborative team members and coordinators of teams, as advisors to students, and as assessment specialists.

Contributions Professional Community Makes to Exemplary Technology Use

The commitment to teachers' individual learning about technology as a support to instruction was very strong at these schools, as evidenced by the support staff and professional development programming dedicated towards this end. The technology leadership at the sites contributed further to the supportive conditions and need for teacher learning that was required to implement technology-enhanced pedagogy in exemplary ways. It appears that the presence of this need to learn and the supportive conditions to do so was reciprocal, or mutually supportive, of the development of professional community around technology use. The professional community deepened and refined the shared vision related to the purposes of instructional technology, and the technology support. Our tentative supposition is that effective use of technology and professional community are mutually supportive—that increases in one create conditions for increases in the other.

Implications for the Future

Regarding the sustainability and transferability of these innovations: the teachers who practice the innovations consistently report that they expect to continue the instructional practice in the future. The systemic factors such as school culture, district support, and state policies influence the sustainability and transferability of these innovations. Systemic factors that were most mentioned included: funding and shared vision; strong leadership that is shared with teachers; public and private sector partnerships; professional development that is institutionalized and extensive; high quality technical and instructional support; climate that is supportive of reform efforts; and commitment to exploiting technological resources.

Incorporating Technology into Early Childhood Pre-Service Field Experiences

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Preparing early childhood pre-service teachers is very challenging due to the national and state mandates to diversify experiences among settings that range from infant and toddler rooms up through the primary grades of elementary school. Within these experiences pre-service teachers will have opportunities to work with experienced and qualified individuals who are dedicated to serving families and nurturing the development and education of young children. However, due to the lack of program continuity and well-integrated curriculum across program boundaries, pre-service teachers will encounter a wide range of classroom practices and program policies.

Within university and college-based teacher education programs, faculty and staff are striving to understand and incorporate technology into teaching practices and pre-service teacher learning activities. Incorporating technology into teacher preparation programs is driven by goals that include: (1) broadening young professionals understanding the electronic communication, professional development and professional research, (2) nurturing pre-service teachers' skills in using technology to promote young children's understandings and broaden the scope of classroom learning activities, and (3) developing pre-service teachers' understanding of the appropriate and effective applications of technology in early childhood curricula.

Preparing early childhood pre-service teachers through field-based courses and field-based internships presents challenges regarding the acceptance, development and implementation of technology as a fully integrated component of early childhood classrooms. Most early childhood programs promote the development of young children across several developmental domains. A growing number of programs are focusing on basic skills and pre-academic activities that may or may not be deemed appropriate for young children. The use of technologies as a viable means of promoting young children's development and learning has largely been attributed to those programs that focus on "academics," rather than developmental approaches.

This paper suggests that early childhood teacher educators could enhance the development of pre-service teachers and neighboring early childhood programs by identifying classroom strategies and curricular constructs that would promote the use of technology in early childhood settings. Further, teacher educators should broaden their view of technology to include materials and objects that promote children's abilities to understand (1) parts to whole relationships, (2) systems that function and "work," (3) computer and electronic hardware that promotes the use of touch and grasping as a means of input, and (4) multimedia as a means of individual creative expression. This paper suggests that developmental early childhood programs should view the use of technologies as an on-going process of learning and interactivity, rather than the widely held belief that technology is a simple input/output relationship. Field-based early childhood programs should model, promote and facilitate the integration of technologies into training sites within their surrounding communities. Due to the diverse needs and program differences found in childcare, federal preschool programs, public school early childhood programs and early childhood special education programs, the challenges are great, but not insurmountable.

Captured Wisdom

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The two videotape set of **Captured Wisdom** is a resource that is designed to help inform educators of successful practices of integrating technology into adult education instruction. Innovative, replicable activities are shown, described, and discussed by front-line classroom educators and learners so that other teachers feel that they have had an opportunity to actually visit the class and chat directly with the learners and teacher about their work together.

Captured Wisdom documents the ways educators and learners actually use technology in their classrooms as a tool to support instruction and learning in a variety of content areas. When used as a vehicle for professional development, **Captured Wisdom** is especially useful for stimulating teachers to think about and question the approaches of other teachers and the ways that they might adapt what they see and hear for their own local education contexts, learners, equipment, and curricular and instructional goals and plans.

The two videotapes contain seven 10-14 minute videos of authentic adult education classrooms. The classrooms were located at Brooklyn Public Library, Linn Benton Community College in Oregon, and Rend Lake College in Illinois among others places. The locations were chosen for the diversity of their student populations and programming. Teachers and adult learners comment on what they are doing and why. There is a short booklet that accompanies the videotapes and provides ideas for how they can be used for teacher education.

TLC - Students as Teachers

Scotty Govaars, Department of Defense Dependents Schools -Europe, US
Pat Ridge, Department of Defense Dependents Schools - Europe, US
David Reider, Learning Communities Research Group, US

This poster session will focus on case studies of students and teachers from several of the Department of Defense Dependents Schools throughout Europe who are currently offering a new course, entitled "Technology Leadership Community" or "TLC".

TLC Course Description

The course is about teaching, learning, and learning to teach. The domain of information is technology and technology skills.

Technology Leadership Community (TLC)

Grade Level: 7-12

Length Of Course: 18-36 Weeks

Recommendations:

Experience with PCs, strong working knowledge of applications used in school and capacity to learn newest technologies, interest in education and teaching. Students must be self-motivated and have a high level of personal responsibility.

Major Concepts/Content:

The TLC class merges learning the newest computer technologies with learning how to effectively teach others those technologies. Students collaboratively study and learn new software packages and computer skills while learning how to become effective trainers and educators. In addition to raising the technological knowledge of the school community, TLC students examine their own roles as teachers and learners, increasing their learning abilities in all other classes.

Major Instructional Activities:

This course is designed to train students to become effective teachers and learners by complementing the technology support in their school community.

Technology study includes Internet navigation and searching, web page creation, server management, desktop publishing and graphics applications, GIS, CAD, and other specialized software. Pedagogical study includes methodology of teaching, materials preparation, presentation strategies, evaluation techniques, and formalized self-reflection activities such as log-keeping and using videotape to observe, analyze, and improve their own teaching efforts.

Teaching activities include weekly one-on-one mentoring sessions with faculty, staff, students or community members; teaching in larger group situations (such as another classroom learning a single application); and preparing manuals and other instructional materials for their "clients." Other activities include regularly assessing the school's technology learning needs and developing strategies to effectively meet those needs.

Major Evaluative Techniques:

Students will create their own assessment rubrics and goals. Doing so enables them to set learning objectives and have a clear understanding of what is expected of them. They do this individually with the teacher. The students will also be graded on completion of tasks and participation and there will be several take-home essays that reflect what the student has learned at different points in the semester.

Assessment Will Be Based On:

How well they learned to identify, analyze, and improve their teaching abilities through their video and writing work. This will be based on survey and writing assignments, comparison of pre/post surveys, and essay writing.

How well their mentees learned the technology material. Teachers and other mentees are asked in survey form to assess their experiences with the TLC students. The TLC student assesses himself and a combination of this data describes how the student performed.

The degree in which a student's technological knowledge improved. The TLC teacher, along with the student, will examine the pre/post surveys and determine how much of the technological knowledge the student learned. Students are expected to attain a high level of competence in one or two applications, rather than learning only a little about as many applications as possible.

Essential Objectives:

Upon completion of the course, students should be able to

Demonstrate how teaching others enhance one's own learning abilities and styles, in any subject.

Demonstrate technological competency on at least one application. Competency is defined as thorough knowledge of the program, fluency with operation, and ability to explore with the tool.

Design a teaching unit or activity, including an assessment piece about a specific software or technological application.

Demonstrate growth in communicative, developmental and social areas. For example, students learn how to become articulate, develop confidence to communicate clearly with adults and youngsters, become methodical in their learning styles, attain a very high degree of responsibility.

Help the school use the complex technologies already in place, working with and complementing the training tasks of the Education Technologist, and also develop new training programs to meet changing demands.

Demonstrate that work of this nature is directly tied to real-world workplace skills.

This is a course that engages the student in the learning process. The content and activities serve to get students to think of themselves as learners, identify their own learning patterns and styles, and improve as learners. They do this by studying how to teach, by teaching others, and by reflecting upon themselves as teachers and learners.

The topic they teach is technology. This is not a technology learning class per se; it is not a computer education, application, or programming course. Those topics may be included, but it is primarily about learning how to teach technological information to others.

This is also not a "students-as-techies" course or program. While students in the TLC may learn how to service an LCD projector or a printer, their job is not to visit a classroom and change a printer cartridge, but rather demonstrate to the faculty in one-session maintenance procedures on a range of common technological equipment. TLC students are the leaders of the school, and presumably the leaders of tomorrow; therefore it wouldn't make sense to exploit their knowledge by having them tasked to fix problems everywhere.

The TLC course contains rigorous academic activities as well as demanding technological experiences.

InTime: A Video Archive for Integrating Best Practice Technology into Classroom Curriculum

Doreen Hayek, University of Northern Iowa, US

Purpose

This presentation will demonstrate the INTIME (Integrating New Technologies Into the Methods of Education) video materials that were developed as part of a $2.4 million PT3 Catalyst Grant at the University of Northern Iowa. (**http://www.uni.edu**)

The purpose of this session is to show how to utilize online video vignettes of Pre K-12 teachers using technology in a robust educational environment in preparing tomorrow's teachers to use technology.

Abstract:

The purpose of INTIME (A Video Archive for Integrating Technology into Classroom) is to provide the necessary resources for methods faculty to revise their courses, model technology integration, and require preservice teachers to integrate technology, along with components of quality education, in their lessons and units. INTIME features over 300 video scenarios of PreK-12 teachers effectively using technology in the classroom. The participants will view and critique online video vignettes of technology integration and quality education in a PreK-12 setting via video streaming technology.

Description of the presentation:

During the session the audience will experience an online video developed at the University of Northern Iowa as part of the INTIME project, applied to the educational environment. The purpose of the project is to provide the necessary resources for methods faculty to revise their courses, model technology integration, and require preservice teachers to integrate technology, along with components of quality education, in their lessons and units.

INTIME provides a wealth of learning resources by featuring video scenarios of PreK-12 teachers effectively using technology in the classroom. The INTIME server hosts over 300 web-based video vignettes of teachers integrating technology in the curriculum. Real Player software may need to be downloaded to view the video vignettes. Classroom activities are analyzed through the lenses of Technology as Facilitator of Quality Education Model. TFQE Model includes the following elements: Technology, Students at the Center of Their Own Learning, Content Standards, Teacher Knowledge and Behavior, Information Processing, Principles of Learning, and Tenets of Democracy.

TFQE Model

The video clips of about 5 minutes in length are searchable at the project website not only by elements of quality education but also by grade level, content area, teacher name, state, video title video code, software, and hardware.

During the session, the audience will have the chance to view one of the videos and its nine versions: an interview with the teacher, a lesson overview, content standards, technology, teacher knowledge, information processing, democracy, principles of learning, and teacher behavior. The video tracks appear on the left side of the screen with a scrolling text narration at the bottom of the screen. The scrolling text has terms that are hyper linked to the summaries of the model. On the right side of the screen the audience will see a complete lesson plan that includes the teacher's name, school, state, grade, curriculum area, full description of the classroom activities, content standards identified for each activity,

tools and resources, assessment, timeline, and teacher's personal comments on the implementation of this particular activity.

Participant Involvement and Outcomes:

The participants will understand the structure and the purpose of the "Technology as Facilitator of Quality Education Model" as well as view and critique online video vignettes of curriculum technology integration and quality education in a Pre K-12 setting via video streaming technology.

This session will show how the project is intended to produce change in teacher training programs in three ways: 1) The project provides web-based learning resources to support new teaching and learning processes in teacher training courses; 2) Teacher trainers can model technology integration in their classes and use the video scenarios and online discussion forum to discuss the technology-based learning process; and 3) INTIME provides a Faculty Online Discussion Forum through which teacher trainers can share strategies for integrating technology with other trainers.

Viewing Successful Partnerships: Teachers and Teacher Candidates Working Together

Linda Kieffer, Eastern Washington University, US
Nancy Todd, Eastern Washington University, US

The Eastern Washington University and Cheney Schor' District PT3 partnership provides opportunitites for EWU teacher candidates to jointly plan and carry out, with classroom teachers, a lesson incorporating technology. Such projects included WebQuests, classroom newspapers, daily school news "broadcasts," and story writing and illustrating.

A professional video (17 minutes) was produced that shows scenes of teacher candidates working with children to help them use computers in school district classsrooms for a variety of technology based projects. Also included are interviews with Cheney teachers and pupils. The video portrays successful projects that were facilitated by teachers and teacher candidates working together.

The video was used in October 2001 at faculty meetings in each of the district schools to sell PT3 partnerships with teachers who had not yet participated with EWU candidates helping with technology in their classrooms. Hearing testimonials of fellow teachers, who admitted on tape to being initial technophobes, many teachers responded, "If so and so can do that with an extra set of hands, I might be able, too." Seeing local success was inspirational to teachers and encouraged them to give technology a try. It was well worth the production cost of the video.

Using Video to Support Teachers' Ability to Interpret Classroom Interactions

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Abstract: This paper examines how video can be used to help pre-service and in-service teachers learn to *notice* what is happening in their classrooms. Data from two related studies are presented. In the first study, middle-school mathematics teachers met monthly in a video club in which they shared and discussed excerpts of videos from their classrooms. In the second study, a group of pre-service high-school mathematics and science teachers used a new video analysis support tool called VAST to examine excerpts of video from their own and others' classrooms. In both cases, we found changes over time in *what* the teachers noticed and in *how* they interpreted these events. This research adds to our theoretical understanding of the role of video in teacher education and also provides direction for the development of new forms of video-based professional development activities.

Introduction

Video has become an important tool for working with both novice and veteran teachers. This is particularly true in mathematics and science education, where many new video-based and multimedia programs have recently been developed. In some cases, video is used to demonstrate new ways that teachers can explore specific content areas with students (e.g., Hatfield & Bitter, 1994)). In other cases, video is used to illustrate particular classroom processes such as discourse or problem-solving (e.g., Corwin, Price, & Storeygard, 1996). Common to both of these approaches is an emphasis on helping teachers learn what to *do* in the classroom.

In contrast, we are examining how video can help teachers learn to *notice*, that is, to develop new ways of "seeing" what is happening in their classrooms. We claim that this ability to notice is critical in the context of current reforms that require teachers to make pedagogical decisions in the midst of instruction. For example, teachers are supposed to pay close attention to the ideas that students raise and then use these ideas as the basis for the lesson-in-progress. This adaptive style of instruction calls for teachers to be skilled at noticing and interpreting classroom interactions. Even veteran teachers who may already be experienced at seeing what is happening in their classrooms need to find ways to focus their attention on new aspects of classroom interactions.

In this paper, we report on two related studies that used video to support teachers' ability to notice and interpret classroom interactions. In both cases, we found changes in *what* the teachers noticed and in *how* they interpreted these events. This research adds to our theoretical understanding of the role of video in teacher education and also provides direction for the development of new forms of video-based professional development activities.

Theoretical Perspectives

A great deal of research has explored experts' ability to recognize the complexities within the situations that they examine (e.g., Goodwin, 1994). In van Es and Sherin (2002) we synthesize such work and propose three key components of teachers' ability to notice. First, noticing involves identifying what is important in a teaching situation (Frederiksen, 1992; Leinhardt, Putnam, Stein, & Baxter, 1991). The classroom is a complex environment with multiple interactions occurring at the same time. A teacher cannot possibly pay attention to all that is happening. Instead, teachers must be selective in determining where to focus their attention.

Second, noticing involves making connections between specific classroom interactions and the broader concepts and principles of teaching and learning that they represent. Experts in many different fields, from chess to physics have been found to represent complex problems in terms of the larger principles that are at stake (e.g., Chi, Glaser,. & Farr, 1988). Similarly, we claim that teachers should not only recognize, as described above, that "This is important." In addition, noticing involves considering "What is this a case of?" (Shulman, 1996). Doing so can help teachers to recognize important relationships among events that occur.

Third, noticing involves teachers using what they know about the context to reason about a given situation. Prior research has found that as individuals gain expertise within a domain, they become more adept as making sense of situations that occur within that domain (Chi et al., 1988). For teachers, this means that noticing classroom interactions is tied to the specific context in which one teaches — the particular subject matter, school environment, grade level, and more.

In exploring how to support the development of teachers' ability to notice classroom interactions, prior research suggests that video can be an effective tool (Sherin, 2001). Video offers a permanent record of classroom interactions. Thus teachers do not have to rely only on their memory of what occurred. Instead they can view a video, multiple times if they wish, examining what took place from different perspectives. In addition, researchers have argued that teachers are often constrained by their familiar classroom routines (e.g., Putnam & Borko, 2000). Viewing video, however, provides teachers with a very different kind of experience, one in which the goal is reflection rather than action. By allowing teachers to remove themselves from the demands of the classroom, viewing video may prompt teachers to develop new ways to examine what happens in their classrooms.

Methods

Data for this paper come from two related studies. In the first study, four middle-school mathematics teachers participated in a year-long series of video club meetings. In these meetings, the teachers met monthly for one hour to watch and discuss excerpts of videos from each other's classrooms. A researcher facilitated the meetings using open-ended questions. For example, after the group watched a video excerpt, the facilitator would ask, "What did you notice?" A total of 10 meetings occurred across the year. Each meeting was videotaped.

In the second study, six pre-service teachers working towards certification in secondary mathematics or science participated in three hour-long sessions in which they used VAST (Sherin & van Es, 2001), a Video Analysis Support Tool, to examine video of their own and others' teaching. VAST allows teachers to import digitized video from their own classroom and provides a series of scaffolds to foster teachers' analysis of this video. Specifically, teachers are prompted to analyze three aspects of their videos: student thinking, the teacher's roles, and classroom discourse. Furthermore, within each of these areas, teachers are asked to respond to a series of questions, the first of which is "What do you notice?" Prior to and following participation in these sessions, the pre-service teachers wrote narrative essays in which they discussed videotaped lessons from their classrooms. (See van Es & Sherin, 2002, for a more detailed description of the VAST software.)

The data were analyzed using an iterative and grounded approach. Fine-grained analyses of videotapes (Schoenfeld, Smith, & Arcavi, 1993) formed the basis for much of the work. Furthermore, we used techniques designed by the Video Portfolio Project (Frederiksen, Sipusic, Sherin, & Wolfe, 1998) to analyze the ways that the teachers discussed and reviewed video excerpts in both the video club and VAST sessions. The narrative essays were analyzed for the extent to which the pre-service teachers (a) highlighted particular events that occurred, (b) paid attention to specific or general evidence from the video, and (c) took a descriptive, evaluative, or interpretive stance toward discussing what had occurred. In addition, changes in the essays were compared with changes in the essays of six other teachers in the same teacher education program but who did not participate in the VAST sessions. Together, these two contexts allowed

us to examine different but related ways that video can support teachers' ability to notice and interpret classroom interactions. Furthermore, they compliment each other by differing in the grade level of he participating teachers as well as in their years of prior teaching experience.

Results and Conclusions

Teachers in both studies developed new ways of noticing and interpreting classroom interactions. In particular, two kinds of changes took place. There were changes in *what* the teachers noticed as they discussed the video excerpts, and there were changes in *how* the teachers discussed these events.

There was a shift in what the teachers noticed.

Changes occurred in what the teachers noticed as they examined videos from their classrooms over time. These changes, however, were somewhat different between the two groups. The teachers in the video club began the year by focusing on what the teacher in the video was doing. For example, in the first video club, the teachers initiated a discussion concerning the mathematical topic that the teacher in the video had decided to pursue. "You know, as teachers [we] make decisions right on the spot about explore it or don't explore it." Similarly, the group discussed the ways that the teacher had responded to a group of students that were working together. "I wanted them to discuss it…I wasn't going to answer him. I wanted his group to do it." With time, however, the focus of their attention shifted from the teacher to the student, and, more specifically, to the mathematical thinking of students. For example, in one of the later video club meetings, the teachers compared two different methods that students offered for estimating the number of people in an aerial photograph of a crowd. "[Julie's idea] was kind of the opposite of what [Robert] said, and that is that all dots are uniformly placed. So taking a small sample…wouldn't make you any less accurate than the larger [sample]." This approach to viewing video became quite common for the teachers and they regularly discussed in detail how students talked about and worked with mathematical ideas. In discussing her experiences in the video club, one teacher explicitly commented on this shift. She explained, " [At first I was thinking] 'Oh, I think I should have said that or done this.' As I was watching though, I thought a lot about… just following the ideas of different kids." This shift is particularly important in light of reform recommendations that encourage teachers to pay close attention to the ideas that students raise (NCTM, 2000). Moreover, researchers have shown that examining student thinking can lead to valuable changes in teachers' instruction and can help teachers to effectively implement the goals of reform (Franke, Fenemma, & Carpenter, 1997).

In the VAST study, a different kind of shift occurred in what the teachers noticed. Rather than a change in topic, there was a change in the range of events that were noticed and discussed by the teachers. Specifically, the pre-service teachers' initial analyses consisted largely of describing events as they unfolded in the video. For instance, one essay started as follows, "The morning began with a test and after a 10-minute break, we began to set up for the discussion of 'number families.'" Another essay chronicled a class discussion by listing the order in which members of the class participated and the comments that were made. "I called on a particular student, Ian, instead of waiting for someone to volunteer. I asked Ian what graph his group chose, and he answered that they had chosen Graph D. I asked him why they chose that graph. After a pause and some giggles from his other group members, they admitted that they had not formed their reasons. At that point, a student from another group, Kenny, raised his hand and said that he picked Graph C…" In contrast, later in the year, the teachers' analyses became more organized around particular events that they identified as noteworthy. No longer were their analyses simply chronological. Instead, the pre-service teachers were now able to identify significant features of instruction and focus their analyses in that area. This shift represents the development of a key component of noticing and has been identified by researchers an important aspect of teaching expertise (Berliner, 1994).

There was a shift in how the teachers discussed what they noticed.

Changes occurred not only in the topic of the teachers' comments but also in the ways in which they discussed these ideas. First, in both studies, the teachers began with an evaluative stance toward events that occurred during instruction. In the video clubs, for example, it was common for teachers to ask "What

should I have done?" or to suggest an alternative pedagogical approach that the teacher on the video might have used. Similarly, in the VAST study, early in the year when the pre-service teachers discussed videos from their classes, they focused on what had and had not "worked" and on what they might want to do differently next time. In one essay a teacher wrote "I wish I had handled much of this discussion differently," and another noted, "I could have ... done a better job of enforcing rules about talking in turn and listening to others." Later in the year, both groups of teachers focused more on interpreting what occurred rather than simply evaluating the teaching and learning that was evident in the video. Thus, for example, instead of focusing immediately on the effectiveness of a particular pedagogical approach, the teachers tried to understand the influence of that approach on the learning that occurred. And when evaluation of a particular situation did take place, it was proceeded by careful interpretation of what had happened. We believe that this is a valuable shift and one that is closely tied to the goals of reform. As other researchers have stated as well, a focus on interpretation allows teachers to understand what has happened and to then use these understandings to inform their decisions of how to proceed (Hammer, 2000; Putnam & Borko, 2000; Sherin, 2001).

In addition to adopting an interpretive stance, the teachers also came to base their interpretations of what had occurred in evidence from the video. Teachers in both studies moved from talking generally about their practice to using specific events in the video as a resource for discussing particular ideas. For example, in the later video clubs, it was not uncommon for a teacher to ask to replay a segment of video so that he or she could more precisely discuss what a student had said. Similarly, the pre-service teachers initially talked broadly about what they saw happening in the classroom, stating, for example, "The students are really thinking in this lesson," without being explicit about what in the video indicated "thinking" on the part of the students. Over time, however, they began to refer to specific student actions and comments in the video as representing "student thinking" and as illustrations of their claims. This use of evidence is important for several reasons, two of which we mention here. First, as they use evidence, teachers make connections between the events that they see and key ideas of teaching and learning. For example, teachers in the video club found that watching video helped them to develop a concrete vision of what a "community of learners" can look like in practice. "I got to see this culture of kids knowing that you expect them to interact and bounce off each other's ideas and they aren't going to just look at you for the answer all the time. That's [a community of learners.]" Similarly, teachers in the VAST study developed more explicit definitions of discourse and inquiry. Second, basing one's comments in evidence from the video allows other teachers to offer different interpretations of the same events and can raise the level of discussion and debate among the group. This is particularly valuable as teachers work together to examine and reflect on their teaching practices.

Implications

The results of this paper illustrate different ways that video-based professional development can provide teachers with opportunities to learn. While video has played an important role in teacher education for over three decades, more research is needed to understand the affordances of video for teacher education and those aspects of teacher cognition that are influenced by the viewing of video. In our research, we take an important step in that direction by examining how video can help teachers learn to notice — learn to notice new aspects of classroom interactions and learn to develop new techniques for making sense of these interactions. We found that both the video clubs and the use of VAST helped teachers to develop ways of noticing and interpreting classroom events that are in line with goals of mathematics and science education reform efforts. Furthermore, we believe that the types of changes that were observed in these studies have the potential to influence teachers' classroom instruction. In ongoing work, we are currently examining the influence of teachers' ability to notice on their classroom instruction and subsequently on students' learning.

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Online Video Case Studies: What Have We Learned about their Value in Preservice Education?

David Georgi, California State University, Bakersfield
Pam Redmond, University of San Francisco
Sue Talley, Pepperdine University
Terence Cannings, Pepperdine University

Online video cases have the potential to provide real-world examples and dilemmas of classroom teaching to our teacher candidates in ways that text-based cases often cannot. In this presentation the panelists will demonstrate the video cases they have created and will share the results of the use of these cases in their respective teacher education programs. They will also discuss tips that they have learned about the production process. Finally, they will discuss the pros and cons of using text-based cases versus online video cases.

Shulman's (1992) research indicates that the use of text-based cases is very effective in teacher preparation, especially when discussion of the case is led by a skilled moderator who can help students develop the reflective skills necessary to improve their teaching practice. But text-based cases cannot address the need for preservice teachers to *observe* teachers handling daily problems in their classrooms. Learning to teach is difficult when students often have little time to observe effective teaching in a variety of situations, to practice their own teaching, and to reflect on this experience with others (Wasserman, 1994).

Online video case studies offer promise in addressing these challenges. Online video cases allow teacher candidates and instructors to view the cases many times, whether on campus or at home. These cases can be linked to a rich set of contextual resources to expand what can be understood directly from observation. These resources might include state frameworks or standards, the lesson plans underlying the video case, papers on relevant theoretical research, the rubrics or assessment tools used, and other web-based resources. The Internet also offers the opportunity for online discussion of the cases, creating the opportunity for students to reflect on these cases beyond just face to face class time, thus moving into a 24 / 7 environment. In addition, the Internet allows discussion to occur between geographically dispersed educators, creating the possibility for teachers to develop the habit of dialogue with others in their community of practice.

Low cost digital video cameras also enable preservice teachers to create their own video cases. They can videotape their own practice, for example, and then add reflective commentary. Easy to use video editors have made this a readily accessible option for teacher educators.

The presenters have all created online video cases as part of their Preparing Tomorrow's Teachers to Use Technology grants.

David Georgi has used Learning Circles consisting of professors, K-12 teachers, future teachers and others to produce streamed videos to illustrate instruction that can be accessed by anyone with an Internet connection. David will share two products, one in Special Education and the other in Physical Fitness.

Pam Redmond has worked with Apple Computer, Inc. to develop online video resources for educators. The project began as the California Learning Interchange and now is expanding into the Teacher's Learning Interchange (TLI). Pam will show some of these resources and discuss their evolution. In addition, she is the evaluator for the work being done at CSU, Bakersfield and will share some of those results.

Sue Talley and Terence Cannings have worked at Pepperdine University on a series of online video case studies. These cases use the tools created by LessonLab, a company founded by Dr. James Stigler. The tools have been developed based on lessons learned from the Third International Mathematics and Science Study. The series includes lessons showing the use of the Language Experience Approach in elementary classrooms, a Climatology lesson in upper elementary using Palm Pilots, and techniques for teaching English Language Learners. Sue and Terry will demonstrate how these videos are used in courses in the Pepperdine teacher credentialing course sequence and discuss the evaluation results to date.

After the demonstrations, the panel members will interact with the audience, answering questions about the value of online video cases and the advantages they have found in using this type of case. They will also discuss times when text-based cases may still be preferable. The panel will also answer questions about production of these online video cases. Finally, they will invite feedback about the elements included in their cases and will discuss the relative merits of these elements based on their use at their respective universities.

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Pepperdine Presents: An Online Video Case Studies Series to Use Throughout a Teacher Education Program

Sue Talley, Pepperdine University, PT3 Project Director

Pepperdine University has developed a series of online video case studies to use as part of its fifth year teacher education program. These online video cases use the software tools developed by LessonLab. Three cases from the series will be demonstrated. The first case, from a lower elementary classroom, includes four segments from a reading lesson that uses the Language Experience Approach. The follow-up to this case demonstrates how these same techniques can be adapted for use in a secondary level classroom. The second case includes four segments from a unit on Climatology, covering both science and math concepts and highlighting the use of Palm Pilots as part of the unit. The third case demonstrates a variety of techniques used to teach English Language Learners.

The LessonLab tools are based on Dr. James Stigler's findings from the Third International Mathematics and Science Study. These findings were documented in his book The Teaching Gap. Stigler & Hiebert (1999) write there that they believe that the teaching profession does not have enough knowledge about what constitutes effective teaching and that there is a lack of a system for developing professional knowledge and for giving teachers the opportunity to learn about teaching.

The cases developed by Pepperdine University using the LessonLab tools include a variety of elements that research indicates are valuable when using cases to better understand teaching. By adding other elements to the video, a richer context for the video case is developed. These elements include commentaries designed to guide the preservice educators while viewing the video. These commentaries may be from the teacher or from other experts in the pedagogy being used or in the technology being infused into the lesson. There are also resources such as the lesson plan used, state frameworks or standards, samples of student work, and the rubrics or assessment tools used as part of the lesson. Because these resources are online, students may also be directed to web-based resources that will be important to them in their teaching practice. In addition to video of the lesson, there is video of the teacher indicating, prior to the lesson, what he or she believes is their intent in the lesson. There is also video of the teacher being interviewed after the lesson, indicating areas that he or she feels could be improved and why. In addition, there is usually commentary from the students about what they understood about the lesson.

While the original intent for these online video cases was to supplement materials used in methods courses, our experience at Pepperdine indicates that the cases have much wider applicability. For example, they can be used in an Instructional Strategies class where preservice educators may be discussing possible classroom management strategies. They might also be used in an Educational Psychology course where preservice teachers might develop their observation and reflection skills. As instructors in the Pepperdine teacher education program use the online video cases, they continue to find new and different ways to take advantage of the rich resources inherent in the video case.

Although the content of these online video cases is important, even more important perhaps are some of the ways that these cases are actually used in preservice instruction. Moving cases from text to online allows preservice educators to watch the video many more times than they might within the context of their face to face classroom time. Preservice educators may also participate in online discussions about the cases, not only with their peers but also with a larger community of educators. Perhaps most important, preservice educators, using the LessonLab tools, can interact with the video in a way that lets them identify key points where they observe certain activities occurring in the video and to reflect on why they believe this is happening.

Finally, these professionally developed online video cases have led faculty to use digital video in even more ways in their classrooms. The availability of low cost digital video cameras and easy to use video editors have led faculty to combine the use of the prepared cases with student-developed cases.

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Educational Applications of Video: Creating Educational Video with Pre-service Teachers to Demonstrate Classroom Management Strategies

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This paper will describe a joint project between PT3 grant team members, an Instructional Technology graduate course, a pre-service teacher core course, and pre-service teachers which resulted in video clips that are currently being used to supplement the curriculum of a classroom management course at the College of Education, University of Houston.

The following paper discusses the design and development of a collaborative video project at the University of Houston through the roles of the multiple participants: Dr. Bernard Robin, the video course instructor; Dr. Philip Ruthstrom, PT3 grant coordinator; Dr. Will Weber, the classroom management course instructor; Mary Thompson, PT3 grant technology fellow and videographer, and students of classroom management who participated in the creation of the videos. The purpose of this paper is to describe the video project from the inception of the idea through its completion including the current status of the project.

Course Concept—Dr. Bernard Robin, course instructor

CUIN 7346, Educational Applications of Interactive Video, is a graduate-level course in the Instructional Technology program of the department of Curriculum and Instruction at the University of Houston. It is also the course for which the video project to be described in this paper was the final project. Beginning in the early 1990s, CUIN 7346 was a course in which educators learned how to take existing video and edit it for their own use in the classroom. The focus at that time was on taking educational materials such as laserdiscs and videotapes and using them to support the classroom goals of the enrolled students. As video technology both increased in sophistication and decreased in cost, the course objectives changed to the creation of video resources rather than the retooling of pre-existing resources. Graduate students enrolled in the course were taught the basics of videography so that they could create their own video resources for personal use. As the course evolved, however, the need for a focus, a central guiding project, whose goal was more permanent and far-reaching, became apparent. Students needed a goal, in the form of real projects for real clients who intended to put the completed video projects to use, to give them the impetus for greater creativity. The inauguration of a project-based focus for the digital video course led to greater room for creativity and better implementation of resources which were, by then, more accessible than ever. This new project-based goal required that groups of students work with a client to create video for actual distribution and use. The final step in the process which led to the creation of the classroom management video project was the collaboration between the students and instructor of CUIN 7346 and the PT3 grant awarded to the University of Houston in Fall 2000. As a result of the PT3 grant, instructors of pre-service teacher courses within the College of Education became clients for the spring semester of Educational Applications of Digital Video.

Collaboration—Dr. Phil Ruthstrom, PT3 grant coordinator

One of the stated goals, among many, of the PT3 grant team at the University of Houston, was to increase the infusion of technology into the education courses for pre-service, pre-certification teachers. The idea for collaboration between the students and instructor of the Education Applications of Interactive Video and the instructors of these courses grew from the stated goals of the PT3 grant. A stated goal of the PT3 grant at the University of Houston is to create opportunities for pre-service teachers to be exposed to authentic uses of technology in their education courses. The personalized video resources proposed for this project, it was hoped, would become integral components of the pre-service teacher courses for which they were created and thereby expose those students to a new and innovative use of technology. As a result, instructors of pre-service education courses, the main focal point of the PT3 grant, became clients for the students enrolled in CUIN 7346. The needs of the clients and the matching of video students to those needs were facilitated by the course instructor and the PT3 grant coordinator. Specifications for videos required that they be short, "mini-case" products, between thirty seconds to one and one-half minutes long, which could be incorporated into a class discussion, and would not require the entirety of a class to view. The goal of the finished videos was to be twofold; that these videos would act as curriculum enhancers for the pre-service teacher courses and that they would serve as a resource for many semesters beyond the time of their actual creation. The pre-service teacher instructors/clients for CUIN 7346 were informed of and in agreement with the stated goals for the video projects.

Client Experience—Dr. Will Weber, Classroom Management Course Instructor

Dr. Weber's classroom management course, CUIN 4375-6375, is a required component of the teacher certification program at the University of Houston. Students in the course are encouraged to look at a number of accepted approaches to classroom management and to choose those strategies which they feel will best suit their needs as teachers and their goals for their future classrooms. Dr. Weber often uses the analogy of a classroom management toolbox, enabling students to understand that the more strategies for classroom management that they have in their toolboxes, the better their chances for a successful managerial intervention to address inappropriate behavior, monitor possible problems, and maintain appropriate behaviors. Dr. Weber frequently employs case studies to help students to better grasp the nature of classroom management strategies. The idea of creating mini-video cases for use in his teaching, therefore, was a perfect fit. Dr. Weber offered his students the opportunity to participate in the video project as an alternative to the standard paper project. In return, students agreed to work closely with the video crew, students of the Educational Applications of Video course, to complete the steps necessary to the creation of good classroom management examples.

Coordination—Mary Thompson, PT3 Grant Technology Fellow and student enrolled in Educational Applications of Video

After Dr. Weber announced the project, interest in the classroom management video project was extremely high. The role of video project coordination fell to a PT3 Grant Technology Fellow who was also enrolled in the Educational Applications of Interactive Video course. Management of materials such as video equipment and permission slips, communication between video crew and the pre-service teachers, and an understanding of concepts being taught in the classroom management course were crucial elements to the development of usable video resources. Knowledge acquired as a student of Educational Applications of Interactive Video played a major role in the successful translation of raw footage filmed at the schools into usable mini-clips which accurately and succinctly demonstrated the classroom management objectives. The first semester of the video project encompassed 12 pre-service teacher volunteers and took place in six school districts in the Houston area. Completing such a large project in a single semester required the cooperation and hard work of all involved.

Creation—Preservice Teachers enrolled in Classroom Management (CUIN 4375-6375)

As participants in the classroom management video project, students were required to make arrangements to provide a real classroom setting for filming. They had to obtain permission to use a classroom from school administration and to film actual students from their parents. Once appropriate permissions had been received, the students created scripts which demonstrated the classroom management strategies recommended in Dr. Weber's course. Students then rehearsed those scenes with their students so that they would be ready for filming. While the amount of work involved in the video project certainly equaled and, in some cases, surpassed the amount of work required by the traditional paper assignment, student evaluation of the process was resoundingly positive. Feedback from two pre-service teacher video project participants follows:

> I used strategies and created scenarios that I felt would demonstrate a teacher-student encounter with management strategies in a classroom environment. My video took place at Stephens Elementary in the Gym; I had a total of ten participants from third and fourth grade…I tried to create realistic scenarios such as following directions, proximity control, and "I" messages. Best of all, I enjoyed the making of the video we created in collaboration to create memorable experiences that can be useful for pre-service teachers or any individual who is interested in classroom management. As an undergraduate student, I will always remember the classroom management video that I invested time in creating. I may not remember the titles of papers that I have written for other classes but my video participation is a valuable resource to retain.
> Evette Silva, 4th grade pre-service teacher, Video Project Participant, Spring 2001

> I believe it is simple to put in theory what one should think a classroom setting should be like. It is very easy to write down on paper what a smooth transition between one lesson and the next should be like but it is not always easy to do it in the real world. Theory and applied theory are two completely different ballgames but without a doubt the video project gave me great experience in applying what I had learned in theory. To be able to write adequate skits I not only had to do my research but, I had to go to observe a class to see what classroom management strategies stood out. Many of the things I observed impressed me so much I decided to incorporate them in my own toolbox of strategies. Once the skits were ready the actors had to be chosen and the skits needed to be rehearsed. The funny thing

is that classroom management needed to be utilized to have successful practice sessions which further built on my experience with its implementation. What I had learned was needed every two seconds with at least one of the little bodies we were trying to control. After days of practice, the final day comes when it was time to film. The effort from the children and the smile on their faces was the greatest treat of all. No essay can give you that kind of satisfaction. I had a great experience with the video and if I could do it again, I would do it again without a doubt. It is not only great experience with the children, but a great chance to see experts doing everyday things that you read about. It is amazing how you understand some theory when you read it, but it is not until you experience it that you completely come to understand and internalize what is written in your textbook. This video project gave me the opportunity to assimilate and internalize my knowledge of classroom management into something a lot more whole and rewarding.
Betty Garcia, 1st grade pre-service teacher, Video Project Participant, Fall 2001

Along with the educational benefit provided to pre-service teachers by the video project, a positive result has been the knowledge gained by participants in the creation process. Above all, the decision to use real teachers and real students has proven to be a valuable one. Using authentic classroom conditions, even in scripted situations, provides a naturalistic insight into teacher/student interactions within the classroom. In addition, it has become readily apparent from viewing the completed videos, that much more can be learned from these video segments than how to teach a single skill. In some cases, the strategy captured on film is not necessarily the exact one that the teacher had planned. In such cases, the natural interaction between teacher and students, again, plays a strong role in producing practical classroom materials. Another unforeseen benefit to filming in a real classroom setting with real students is the pleasure the majority take in participating. Not only do students like the moments when they are the center of attention, they also like the idea that they are helping their own teachers in a project for their coursework. Additionally, reflection on the video creation process led to the discovery that educational videos, while needing to be professional and cleanly edited, do not have to be filled with glamour; the purpose of these videos is to highlight the skills of the teacher not the videographer. Therefore, fireworks and special effects are not necessary and, indeed, would have distracted from the established goal.

Current Status—Continued Collaboration

The collaborative nature of this project, involving representatives from all levels of the College, enabled the success of the venture. The strength of this project lies in the concerted effort of so many participants throughout the College of Education. Each stakeholder in the video project brought the resources without which the videos could not have been made. Results are such that the project has been extended and is now in its third semester. The continuing goal is to create a library of classroom management examples that future students can draw on both in class and in a projected online component.

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